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ART UNIT		PAPER NUMBER		
1797				
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

ADIPFDD@bipc.com

Office Action Summary

Application No.

10/551,914

Applicant(s)

BLANCHARD, GILBERT

ExaminerCHANTEL FERGUSON-
GRAHAM**Art Unit**

1797

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 February 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 16-32 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 16-32 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Response to Amendment

1. The amendment filed February 6, 2009 has been entered and fully considered.
2. Claims 16-32 are pending and have been fully considered.
3. Claims 30-32 are new and are supported by the specification as originally presented.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

6. Claims 16-29, and 30-32, are rejected under 35 USC 103 (a) as being obvious over WAKEFIELD (US PG PUB 20050066571), and in view of BROOKHART (US PATENT 5880241).

Regarding claims 16-22, and 30-32, WAKEFIELD teaches a fuel or fuel additive comprising cerium oxide, a rare earth compound, a metal from group IIA and IIIB (abstract); and can be in an organic solvent (paragraph 37); and an antioxidant that is

phenolic an alkylphenol such as 2,6-di-tert-butylphenol (paragraph 53); and an organic carboxylic acid (**paragraph 27**) which is an amphiphilic acid.

Regarding claim 23, WAKEFIELD teaches the particles are nanocrystalline (**paragraph 5**).

WAKEFIELD does not teach that at least 90% of the particles are monocrystalline.

However BROOKHART et al. teaches that the crystallinity of at least 20% (**col. 65 line 15**).

At the time of the invention, it would have been obvious to one of ordinary skill in the art to modify the fuel and/or fuel additive of WAKEFIELD by incorporating the percent crystallinity of BROOKHART.

The motivation would have been to provide a fuel or fuel additive for the elimination of toxic exhaust emission gases in automobiles as taught by WAKEFIELD (**paragraph 2**); as well as having a composition useful as viscosity modifiers for lubricating oils, particularly automotive lubricating oils as taught by BROOKHART et al. (**col. 55 lines 50-55**).

Therefore, the invention as a whole would have been *prima facie* obvious to one of ordinary skill in the art at the time the invention was made.

Regarding claims 30-32, it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. (See MPEP § 2144.05)

Regarding claims 24-25 and 27, modified WAKEFIELD teaches that the nanocrystalline are 1-300 nm in size (**paragraph 5**); and that the particle size must be small enough to remain in a stable dispersion in the fuel (**paragraph 5**). The organic carboxylic

acid (**amphiphilic**) is at least 8 carbon atoms such as stearic acid (**paragraph 27**). Modified WAKEFIELD in view of BROOKHART et al. describes a linear alpha-olefin (abstract).

Regarding claim 26 modified WAKEFIELD teaches a process where the salt of cerium and chloride is reacted (**paragraph 15**); in which a process called doping is done during formation typically involves mixing, in an aqueous solution, a water-soluble cerium salt and a water-soluble salt of the dopant and raising the pH of the solution to cause the desired doped cerium oxide to precipitate (**paragraph 18**). Modified WAKEFIELD in view of BROOKHART et al. teaches polymerization procedure which includes placing the composition in a drybox freezer (**see EXAMPLES 26 and 27**).

Regarding claims 28 and 29, modified WAKEFIELD teaches catalytic activity may occur when cerium oxide is added as an additive to fuel, for example petrol (**conventional fuel**) (**paragraph 5**).

Response to Arguments

7. Applicant's arguments filed February 6, 2009 have been fully considered but they are not persuasive.

Applicant argues:

"Claims 16-29 stand rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. U.S. Patent Application Publication No. 2005/0066571 to Wakefield (hereafter "Wakefield") in view of U.S. Patent No. 5,880,241 to Brookhart et al. (hereafter "Brookhart et al.") on the grounds set forth in paragraph 5 of the Official Action. For at least the reasons noted below, this rejection should be withdrawn.

The present invention is directed to a colloidal dispersion having a formulation which renders it suitable for certain uses, such as a fuel additive. The colloidal dispersion of the present invention comprises particles of a rare earth compound, an acid and an organic phase, as well as an antioxidant. The presence of an antioxidant provides the colloidal dispersion with the advantage of making the stability of the dispersion independent of, for example, the diesel fuel in which it is incorporated. (See, e.g., page 2, lines 9-12 of the present specification). A colloidal dispersion formed according to the principles of the present invention is set forth in claim 16. Claim 16 recites:

16. A colloidal dispersion comprising particles of

a rare earth compound, an acid, an organic phase, and an antioxidant. Wakefield is directed to a fuel or fuel additive which comprises particles of cerium oxide which have been doped to improve the catalytic efficiency of the cerium oxide; However, Wakefield fails to disclose a colloidal dispersion having the formulation set forth in claim 16 above."

Examiner respectfully disagrees:

Applicant is arguing language that is not claimed. The Examiner respectfully cannot read the specification into the claims. Claim 1 merely states "A colloidal dispersion comprising particles of a rare earth compound, an acid, an organic phase, and an antioxidant." WAKEFIELD teaches a fuel or fuel additive comprising cerium oxide, a rare earth compound, a metal from group IIA and IIIB; a carboxylic acid, organic solvent; and an antioxidant (refer to rejection above). Whether the cerium oxide is doped or not, stills meets the limitations of Applicants claims based on claim language.

Applicant argues:

It is asserted in paragraph 5 of the Official Action that Wakefield teaches: "a fuel or fuel additive comprising... an antioxidant that is phenolic, an alkylphenol such as 2,6-di-tert-butylphenol (paragraph 53); and an organic carboxylic acid (paragraph 27) which is an amphiphilic acid."
However, with respect to the antioxidant, paragraph [0053] of Wakefield merely describes the use of antioxidants as potential diesel fuel additives. The cited portion of Wakefield does not support the assertion that Wakefield discloses a colloidal dispersion which includes an antioxidant. Similarly, with respect to the organic acid, the description appearing in paragraph [0027] of Wakefield describes the use of an organic acid as a coating agent for coating the cerium oxide particles. Wakefield does not disclose that this organic acid remains and forms part of a colloidal dispersion as required by the presently claimed invention.

Examiner respectfully disagrees:

Applicant discloses the colloidal dispersion is used as a fuel additive, just as WAKEFIELD discloses (as Applicant cites) that the antioxidant is a component in the fuel composition as an

additive. Applicant argues "Wakefield does not disclose that this organic acid remains and forms part of a colloidal dispersion as required by the presently claimed invention." Applicant is again arguing language that is not claimed. The Examiner respectfully cannot read the specification into the claims.

Applicant argues:

In addition, it is also asserted in paragraph 5 of the Official Action that "both references teach fuel additives." The only reference that applicants can find in Brookhart et al. using the polymers described therein as additives is in connection with lubricating oil additives. This portion of the Brookhart et al. disclosure (column 55, lines 50-55) is cited in paragraph 5 of the Official Action in support of the rejection. However, applicants respectfully submit that it would not have been obvious to one of ordinary skill in the art to have modified a fuel or fuel additive with a lubricating oil additive, as alleged in the grounds for rejection. The purposes of the two additives are completely different from one another, and thus would not suggest their combination to one of ordinary skill in the art. For at least the reasons noted above, reconsideration and withdrawal of the rejection is respectfully requested. The remaining claims depend from claim 16. Thus, these claims are also distinguishable over the proposed combination of Wakefield and Brookhart et al. for at least the same reasons noted above.

Examiner respectfully disagrees:

Applicants argues that Brookhart only disclose using the polymer described as an additive in connection with lubricating oil additives; The examiner disagrees. Brookhart discloses that the polymers are useful as pour point depressants for fuels (fuel additive) and oils (col. 70 ln 58-60; col. 72 ln 48-49; and claim 51); therefore rendering the purposes of the two additives obvious to one of ordinary skill in the art to modify a fuel or fuel additive.

Applicant argues:

By the present response, newly presented independent claim 30 has been added. Like claim 16, claim 30 recites a colloidal dispersion which includes, inter alia, an acid and an antioxidant. Thus, the proposed

combination of Wakefield with Brookhart et al. also fails to disclose or suggest the requirements of claim 30 for at least the same reasons noted above in connection with the rejection of claim 16. In addition, claim 30 also recites a specific proportion of antioxidant to rare earth compound plus optional element E, which is suitable in the form of a colloidal dispersion or fuel additive. Wakefield also fails to contain any disclosure whatsoever concerning an appropriate amount of antioxidant for inclusion in a colloidal dispersion as required by newly presented claim 30. Dependent claims 31 and 32 have also been added. These claims depend from claim 30, and thus are distinguishable over the applied prior art for at least the same reasons noted above in connection with the discussion of newly presented claim 30.

The examiner respectfully disagrees with Applicant as noted in the above arguments.

Conclusion

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).
9. A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.
10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to CHANTEL FERGUSON-GRAHAM whose telephone number is (571)270-5563. The examiner can normally be reached on M-Th 8:00-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on 571-272-1444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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